ipd1000stddbvTES-10

Defense Information Infrastructure (DII)

Common Operating Environment (COE)

Software Test Description (STD) and Software Test Report (STR) for the METOC Digitized Bathymetric API and Data Segments (MADBV and MDDBV)

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1 SCOPE

1.1 Identification

This Software Description Document (STD) and Software Test Report (STR) describes the test procedures and results used to verify the Digitized Bathymetric Application Program Interface (API) Segment (MADBV), and the Digitized Bathymetric Data Segment (MDDBV), Version 1.0 series, of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database. The MADBV and MDDBV segments provide APIs and a database for the retrieval of historical data. This software is designed to run under the Defense Information Infrastructure (DII) Common Operating Environment (COE), release 3.1, on a Hewlett-Packard computer running HP-UX 10.20 or a personal computer running the Microsoft Windows NT 4.0 operating system with Service Pack 3.

1.2 System Overview

The APIs described in this document form a portion of the METOC Database component of the TESS(NC) Program (Navy Integrated Tactical Environmental Subsystem (NITES) Version I). On 29 October 1996, the Oceanographer of the Navy issued a TESS Program Policy statement in letter 3140 Serial 961/6U570953, modifying the Program by calling for five seamless software versions that are DII COE compliant, preferably to level 5.

The five versions are:

- NITES Version I — The local data fusion center and principal METOC analysis and forecast system (TESS(NC))
- NITES Version II — The subsystem on the Joint Maritime Command Information System (JMCIS) or Global Command and Control System (GCCS) (NITES/Joint METOC Segment (JMS))
- NITES Version III — The unclassified aviation forecast, briefing and display subsystem tailored to Naval METOC shore activities (currently satisfied by the Meteorological Integrated Data Display System (MIDDS))
- NITES Version IV — The Portable subsystem composed of independent PCs/workstations and modules for forecaster, satellite, communications, and Integrated Command, Control, Communications, Computer, and Intelligence Surveillance Reconnaissance (IC4ISR) functions (currently the Interim Mobile Oceanographic Support System (IMOSS))
- NITES Version V — Foreign Military Sales (currently satisfied by the Allied Environmental Support System (AESS))

NITES I acquires and assimilates various METOC data for use by US Navy and Marine Corps weather forecasters and tactical planners. NITES I provides these users METOC data, products, and applications necessary to support the warfighter in tactical operations and decision making. NITES I provides METOC data and products to NITES I and NITES II applications, as well as non-TESS(NC) systems requiring METOC data, in a heterogeneous networked computing environment.

The TESS(NC) Concept of Operations and system architecture require that the METOC Database be distributed both in terms of application access to METOC data and products and in terms of physical location of the data repositories. The organizational structure of the database is influenced by these requirements, and the components of this distributed database are described below.

In accordance with DII COE database concepts, the METOC Database is currently composed of five DII COE-compliant *shared database* segments and one DII COE-compliant data segment. Associated with each shared database and data segment is an API segment. This organization is shown in Figure 1-1. The segments are arranged by data type as follows:

Data Type	**Data Segment**	**API Segment**
Grid Fields	MDGRID	MAGRID
Latitude-Longitude-Time (LLT) Observations	MDLLT	MALLT
Textual Observations and Bulletins	MDTXT	MATXT
Remotely Sensed Data	MDREM	MAREM
Imagery	MDIMG	MAIMG
Historic Bathymetry Data	MDDBV	MADBV

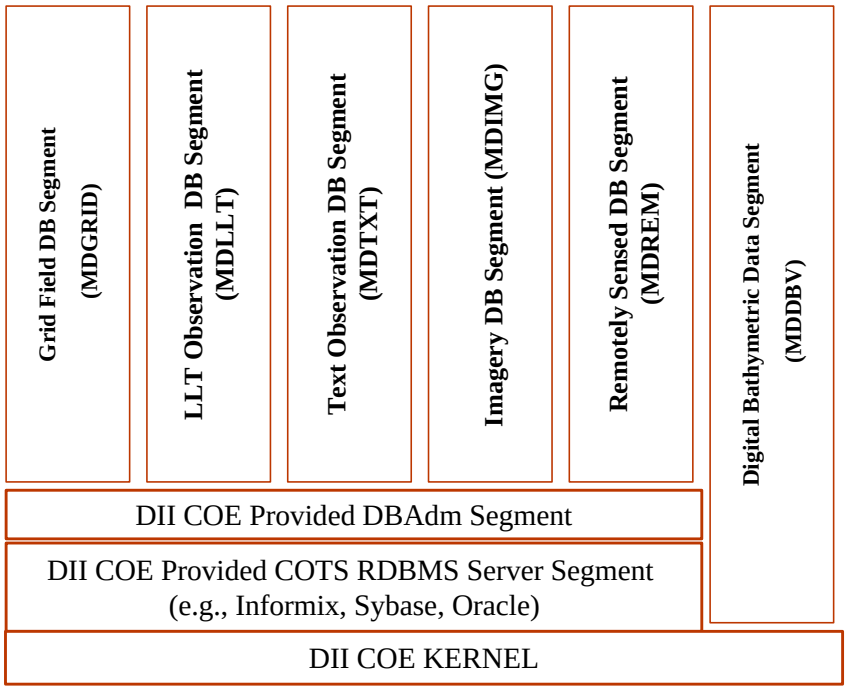

Figure 1-1. TESS(NC) METOC Database - DII COE Segment View

Typical client-server installations access shared database segments via a COTS RDBMS client/server as shown in Figure 1-2. This shows the shared database segments residing on a DII COE SHADE database server, with a NITES I or NITES II client machine hosting the API segments. Communication between API segments and shared database segments is accomplished over the network using ANSI-standard Structured Query Language (SQL).

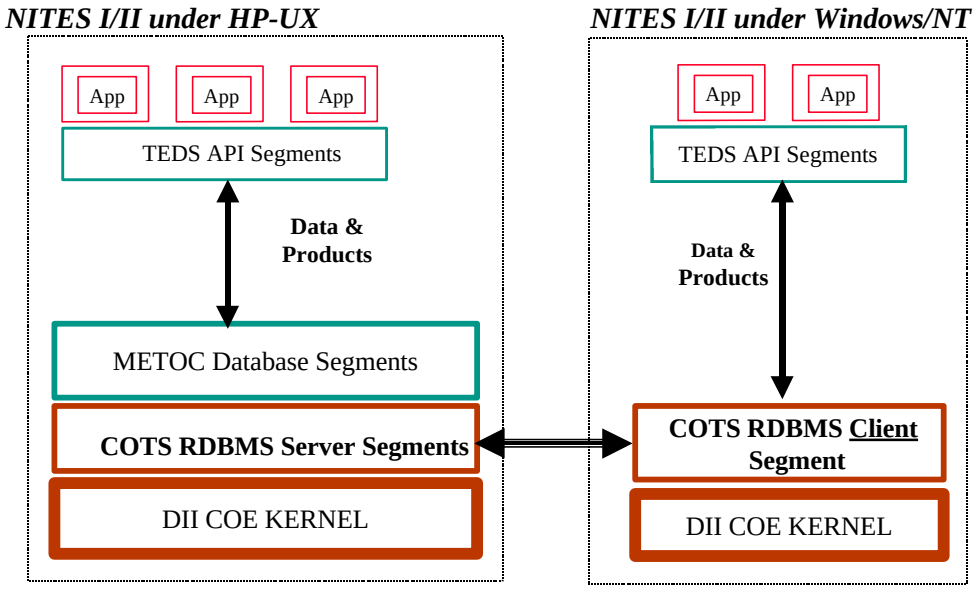

Figure 1-2. Distributed APIs via COTS RDBMS Client/Server Functionality

Data segments are static files of historic data. DII COE data segments are available over a distributed network via DII COE Kernel Service (NFS). In this case, the data segments are accessed directly by the distributed APIs (Figure 1-3). The platform running the applications needing the data must first mount the file system containing the data segment. The remote system may then access the data from the mounted drive using NFS services. Access to the mounted drive is then transparent to the application/API utilizing the data.

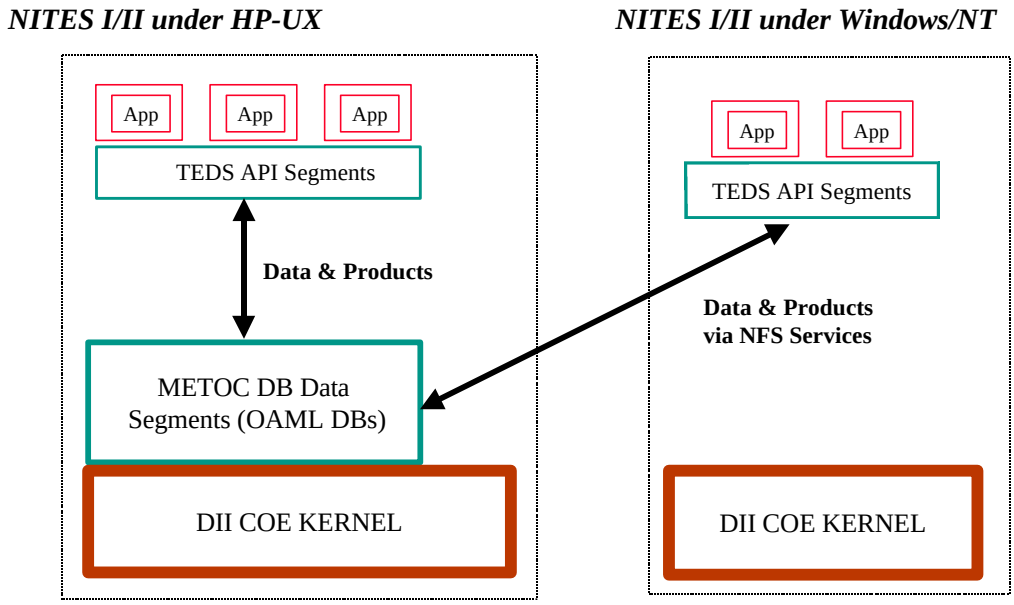

Figure 1-3. Distributed APIs via DII COE Kernel Services (NFS)

The MADBV segment deals with historic bathymetry data. The data is generated from the Oceanographic and Atmospheric Master Library (OAML) Digitized Bathymetric Database – Variable resolution (DBDB-V) data, and provides global water depth at various resolutions throughout the world.

2 REFERENCED DOCUMENTS

2.1 Government Documents

STANDARDS

MIL-STD-498 5 December 1994	*Software Development and Documentation*

SPECIFICATIONS

Unnumbered 5 December 1997	*Performance Specification (PS) for the Tactical Environmental Support System/Next Century TESS(NC) (AN/UMK-3)*
Unnumbered 30 September 1997	*Software Requirements Specification for the Tactical Environmental Support System/Next Century [TESS(3)/NC] Meteorological and Oceanographic (METOC) Database*, Space and Naval Warfare Systems Command, Environmental Systems Program Office (SPAWAR PMW-185), Washington, DC

OTHER DOCUMENTS

Unnumbered 30 September 1997	*Database Design Description for the Tactical Environmental Support System/Next Century [TESS(3)/NC)] Meteorological and Oceanographic (METOC) Database*, Space and Naval Warfare Systems Command, Environmental Systems Program Office (SPAWAR PMW-185), Washington, DC
DII.COE.DocReqs-5 29 April 1997	*Defense Information Infrastructure (DII) Common Operating Environment (COE) Developer Documentation Requirements, Version 1.0*

Department of the Air Force, Headquarters Air Weather Service, Scott AFB, ILL

AWSR 105-2 24 August 1990	*Weather Communications Policies and Procedures*

Naval Research Laboratory, Marine Meteorology Division, Monterey, CA

ipd1000madbvpmTES-10 31 July 1998	*Programming Manual (PM) for the Digitized Bathymetric API Segment (MADBV) of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database*
ipd1000madbvrmTES-10 31 July 1998	*Application Program Interface Reference Manual (APIRM) for the Digitized Bathymetric API Segment (MADBV) of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorological and Oceanographic (METOC) Database*
ipd1000madbvipTES-10 31 July 1998	*Installation Procedure for the METOC DBDB-V API (MADBV) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorological and Oceanographic (METOC) Database*
ipd1000mddbvipTES-10 31 July 1998	*Installation Procedure for the METOC DBDB-V Data (MDDBV) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorological and Oceanographic (METOC) Database*
ipd1000madbvsvdTES-10 31 July 1998	*Software Version Description (SVD) for the METOC DBDB-V API (MADBV) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorology and Oceanography (METOC) Database*
ipd1000mddbvsvdTES-10 31 July 1998	*Software Version Description (SVD) for the METOC DBDB-V Data (MDDBV) Segment of the Tactical Environmental Support System (Next Century) [TESS(NC)] Meteorological and Oceanographic (METOC) Database*

2.2 Non-Government Documents

None.

3 TEST PREPARATION

3.1 MADBV and MDDBV Segments Test Preparation

Segment testing for each of the tests and test cases identified in Section 4 is conducted in the TESS(NC) target hardware and software environment. The approach for all testing with the exception of the installation tests (Section 4.1) is performed using software test driver programs with file- or tester-provided input data. The goal is to automate the testing to the greatest extent possible (within the schedule constraints) to facilitate general, integration, and regression testing of the segments. The test driver programs used are the same as the test driver programs delivered as part of the API segment delivery. Following API segment installation, the programs are located in the subdirectory: **h/MADBV/Integ/TestSuite**.

3.1.1 Hardware Preparation

To run the tests described herein, the tester must have installed the data segment (MDDBV) on the test server machine where the DII COE RDBMS and DB administration tools reside. Depending on the test client machine and test case, the tester must also have installed the API segments (MADBV) on the test server machine, the test client machine, or in some cases, both machines. The hardware requirements for the test are described in Section 3.1.1 of the *Installation Procedure for the METOC DBDB-V Data (MDDBV) Segment* and the *Installation Procedure for the METOC DBDB-V API (MADBV) Segment*. Testing of the APIs in the networked client/server configuration (i.e., PC/Windows NT client, HP-UX database server) requires that both client and server machines are connected on an IEEE 802.3/5 local area network supporting the TCP/IP protocol.

3.1.2 Software Preparation

With the exception of the segment installation tests, the Digitized Bathymetric segment tests are performed using semi-automated software test driver programs. These test driver programs are HP-UX and Windows NT portable, command line invokable, executable. The programs rely on ASCII text file and manually entered command line inputs for test case data and control. The program output can be written directly to screen or redirected to files for review or permanent capture. Test drivers have been written for both static and dynamic API library verification. Each test driver supports multiple test cases through single or batch processing of the text files. Manual testing is also supported using the command line parameters.

3.1.2.1 Using the Test Driver Programs

The following table identifies the executable test driver programs used to support DBDB-V testing.

Table 3-1. DBDB-V Test Drivers

Test Driver Name[1]	Test Driver Description	Test
MADBVtestGetCatalog_d/_l	Retrieves a catalog listing of the resolutions from the database.	4.2
MADBVtestGetContours_d/_l	Retrieves a single contour from the database given specific inputs.	4.3
MADBVtestGetGrid_d/_l	Retrieves a single grid from the database given specific inputs.	4.4
MADBVtestGetTrack_d/_l	Retrieves a geographical track (great circle route) from the database given specific inputs.	4.5

Note 1: Driver program names end with either a _d or _l, where _d = dynamic API library, and _l = static API library. Programs are otherwise functionally identical. Prior to running the dynamic API test drivers, an environmental variable must be set after a new installation of the MADBV segment. This procedure is covered in Section 3.1.3 of this document.

3.1.2.2 Command Line Arguments

The command line arguments permit the tester to control the test program, test program inputs, test program output, and exercise the test cases developed for the segment. These arguments also allows the tester to manually enter test data and conditions to exercise segment functionality. Each of the driver programs supports the same set of command line parameter inputs. The following table describes the arguments. The *italicized* text denotes the sample name of a file given by the user, and any naming convention is up to the user.

Table 3-2. DBDB-V Command Line Arguments

Argument	Description
-h	Displays help information about the specific test driver program invoked. e.g., MADBVtestGETGRID **-h**
-d	Turns on the debug macros (DPRINTS) within the APIs causing the display of debug information at runtime. e.g., MADBVtestGETGRID -b TESTDATA/GRID **-d**

Table 3-2. DBDB-V Command Line Arguments

Argument	Description
-l <file name>	Saves the manually entered inputs to a file, which can be used to run automated testing in the batch (-b) processing mode. In addition, once executed, the output is provided to the user. e.g., MADBVtestGETGRID **–l** *GRID2*
-b <directory path>	Turns on test driver batch processing mode. Batch processing mode causes the test driver to run the test cases associated with the input files located in the specified directory path. One or more input files can be located in the directory path. e.g., MADBVtestGETGRID **–b** TESTDATA/GRID
-o	Opens the data files while the connection to the database is made. e.g., MADBVtestGetCatalog **-o**

3.1.2.3 Test Input Data

Test driver program inputs are provided either manually through tester interaction with the test program or through the test case-oriented ASCII text input files. The input files are delivered with the API segment and loaded onto the target system when the segment is installed. The files are located under the **/h/MADBV/Integ/TestSuite/TESTDATA** path of the target system. The following table identifies the subdirectory name and applicable test under the TESTDATA path.

Table 3-3. Test Driver Subdirectories and Names

Test	Subdirectory	Description
4.3	CONTOURS/	This subdirectory contains the DBDB-V test case files with the parameters to retrieve contours from the database. These files are used in conjunction with the MADBVtestGetContours test drivers.
4.4	GRID/	This subdirectory contains the DBDB-V test case files with the parameters to retrieve grids from the database. These files are used in conjunction with the MADBVtestGetGrid test drivers.
4.5	TRACK/	This subdirectory contains the DBDB-V test case files with the parameters required to retrieve a geographic track. These files are used in conjunction with the MADBVtestGetTrack test drivers.

3.1.2.4 Test Output Data

To facilitate review of the desired test cases. Once a test drive is executed on an xterm or console window (see Section 3.1.3 for invoking a window on the HP-UX or NT systems), the user will be able to review debug deprints and/or the status of the driver results. If desired, the test team can redirect these outputs to a file of a specific name for later review. For example, running the GETGRID test driver with batch (-b) processing, with the GRID subdirectory test case, with debug deprints, and redirected to the file named *test1*. At the command line the following would be entered at the prompt (/h/MADBV/Integ/TestSuite>) and executed by selecting the <Enter> button:

- MADBVtestGETGRID_l –b TESTDATA/GRID -d >test1

All test results that support this document are furnished in the on a 3.5" floppy disk in a "text" format (the debug deprints are not provided). Test Results are discussed in **Appendix B** of this document.

3.1.3 Other Preparations

3.1.3.1 Establishing an Xterm or Console Window on the HP-UX and NT Platforms

In order to efficiently test the database and API segments, semi-automated software test driver programs were developed. These programs are command line invokable executables that use manual or file inputs to generate redirectable outputs to the display. To operate these driver programs in the DII COE 3.1 software environment requires that an "Xterm" or console window be made available. The following procedures describe how to create the console windows for the HP-UX and Windows NT test environments.

In some of the test cases it may be necessary for the user to verify that the data has been ingested, updated, or deleted in the database located on the HP-UX system. This is accomplished using an xterm window and DB Access with the steps discussed in the section below.

3.1.3.2 Establishing a Console Window for a DII COE 3.1 HP-UX System

Log in as *sysadmin* and perform the following steps:

1. Click on the **Application Manager** icon on toolbar.

2. Double-click on the **Desktop_Apps** icon.

3. Double-click on the **Create Action** icon.
4. Enter `xterm` in the **Action Name** field.
5. Click **Find Set...** in the Action Icons panel.
6. In **Icon Folders** list, double-click on **/usr/dt/appconfig/icons/C.**
7. Scroll **Icon Files** list down to the **Dtxterm** icon (a terminal with an X).
8. Click on the **Dtxterm** icon.
9. Click on the **Ok** button.
10. Enter **/usr/bin/X11/xterm -sb -sl 800** in Command field.
11. Enter **This is an xterm** in Help Text field.
12. Select **File/Save** from window menu bar.
13. You should see a **Create Action - Confirmation** window appear.
14. Click **Ok.**
15. Close **Create Action** window.
16. Close **Application Manager** window.
17. Click on the **Home Folder** icon on toolbar.
18. You should see the new action in your folder; double-click on the new action to launch the folder.

If desired this icon can be installed into the “Personal Applications” pop-up menu panel on the toolbar. This is accomplished by performing the following steps:

1. Click on the **Home Folder** icon on toolbar.
2. Click on the **Personal Application** panel “up arrow” button (above the icon) and drag your new action and drop it on the **Install Icon** button.
3. You should see your new icon appear in the panel.
4. You can move the new icon so it is always visible on the toolbar by right-clicking on the new icon and select **Copy to Main Panel.**

3.1.3.3 Establishing a Console Window for a Windows NT 4.0 System

The following steps are required to initialize an MS DOS console window on the Windows NT system.

Log in as the appropriate user (site dependent) and perform the following steps:

1. Click on the **Start** button at the lower left-hand portion of the window.
2. Select **Programs** directly followed by **MS-DOS Prompt**.
3. An *MS-DOS PROMPT* window will be displayed with the DOS command line (C:\) prompt.

3.1.3.4 Setting the Environmental Variable to Run the Dynamic Library API

Before testing the dynamic (shared) library API (_d), the tester must ensure that the environmental variable is set after each fresh installation of the MADBV segment. This is accomplished my opening an xterm and console window on the HP-UX and NT machines, respectively.

The following steps are required to complete this process:

HP-UX:

1. Open an xterm window.
2. Set the path on the HP-UX by typing:
   `setenv SHLIB_PATH ${SHLIB_PATH}:/h/MADBV/bin` <Enter>
3. Set the path on the HP-UX by typing:
   `setenv MDDBV_HOME/h/MDDBV` <Enter>
4. `setenv INFORMIXDIR /opt/informix` (required for running -l and -d test drivers)
5. `setenv INFORMIXSERVER online_coe` (required for running -l and -d test drivers)

NT:

1. Open a DOS window.
2. Set the path by typing:
   `set PATH=%PATH%;c:/h/MADBV/bin` <Enter>

4 TEST DESCRIPTIONS

4.1 MDDBV and MADBV Segment Installation Test

The following test cases comprise a segment installation test to verify that the Digitized Bathymetric data and API segments install correctly in the target hardware and software environment.

4.1.1 MDDBV Data Segment Installation Test Case

This test case verifies the correct installation of the MDDBV data segment. MDDBV will be installed using the DII COE-provided installation tools on the HP-UX target platform.

4.1.1.1 Prerequisite Conditions

The prerequisite conditions for this test case are defined in Section 3 of the *Installation Procedure for the METOC DBDB-V Data (MDDBV) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorological and Oceanographic (METOC) Database*, version 1.0 or later (herein referred to as MDDBV IP).

4.1.1.2 Test Inputs

There are no test inputs for this test case other than the operator actions identified in Section 4 of the MDDBV IP.

4.1.1.3 Expected Test Results

The Segment Installer window will display **METOC Digitized Bathymetric Data Segment** in the Currently Installed Segments Section of the window (see Section 4 of the MDDBV IP).

4.1.1.4 Criteria for Evaluating Results

The Segment Installer tool determines and indicates successful installation of the segment to the tester.

4.1.1.5 Test Procedure

The test procedure is identical to the segment installation instructions provided in Section 4 of the MDDBV IP.

4.1.1.6 Assumptions and Constraints

This test assumes that the target hardware is operating correctly and is configured with the operating and application software identified in Sections 3.1 and 3.2 in the MDDBV IP.

4.1.2 MADBV API Segment HP Installation Test Case

This test case verifies the correct installation of the HP-UX MADBV API segment. MADBV will be installed using the DII COE-provided installation tools on the HP-UX target platform. The MADBV API Segment for HP provides both the dynamic link and static link libraries when installed.

4.1.2.1 Prerequisite Conditions

The prerequisite conditions for this test case are defined in Section 3 of the *Installation Procedure for the METOC DBDB-V API (MADBV) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorological and Oceanographic (METOC) Database*, version 1.0 or later (herein referred to as MADBV IP).

4.1.2.2 Test Inputs

There are no test inputs for this test case other than the operator actions identified in Section 4 of the MADBV IP.

4.1.2.3 Expected Test Results

The Segment Installer window will display **METOC Digitized Bathymetric API Segment** in the Currently Installed Segments Section of the window (see Section 4 of the MADBV IP).

4.1.2.4 Criteria for Evaluating Results

The Segment Installer tool determines and indicates successful installation of the segment to the tester.

4.1.2.5 Test Procedure

The test procedure is identical to the segment installation instructions provided in Section 4 of the MADBV IP.

4.1.2.6 Assumptions and Constraints

This test assumes that the target hardware is operating correctly and is configured with the operating and application software identified in Sections 3.1 and 3.2 in the MADBV IP.

4.1.3 MADBV API Segment Windows NT Installation Test Case

This test case verifies the correct installation of the Windows NT version of the MADBV API segment. MADBV will be installed using the InstallShield™ software provided with the MADBV Windows NT Segment. The MADBV API Segment for Windows NT provides both the dynamic link and static link libraries when installed.

4.1.3.1 Prerequisite Conditions

The prerequisite conditions for this test case are defined in Section 3 of the *Installation Procedure for the METOC DBDB-V API (MADBV) Segment of the Tactical Environmental Support System Next Century [TESS(NC)] Meteorological and Oceanographic (METOC) Database*, version 1.0 or later (herein referred to as MADBV IP).

4.1.3.2 Test Inputs

There are no test inputs for this test case other than the operator actions identified in Section 4 of the MADBV IP.

4.1.3.3 Expected Test Results

The InstallShield™ installation program will display the Installation Complete dialog box. A directory listing of the C:\h\MADBV directory and subdirectories will display the dynamic link libraries, static link libraries, API test drivers, and test datasets installed with the segment. Note: The Windows NT Explorer application can be used to view the contents of the directories. Section 4.4 of the MADBV IP lists the installation directories and contents.

4.1.3.4 Criteria for Evaluating Results

The InstallShield™ installation program determines and indicates successful installation of the segment to the tester. Additionally, the contents of the **C:\h\MADBV** directory and subdirectories should match the list referenced in Section 4.4 of the MADBV IP.

4.1.3.5 Test Procedure

The test procedure is identical to the segment installation instructions provided in Section 4 of the MADBV IP.

4.1.3.6 Assumptions and Constraints

This test assumes that the target hardware is operating correctly and is configured with the operating and application software identified in Sections 3.1 and 3.2 in the MADBV IP.

4.2 Resolution Catalog Test

The following test cases verify that the MDDBV database and MADBV API segments support the retrieval of different resolutions for the database.

4.2.1 Retrieval of Resolutions with Get Catalog Test Case

4.2.1.1 Prerequisite Conditions

The following conditions must be established prior to executing these test cases:

1. All applicable segments are loaded on the target machines as specified in Section 3 of the MADBV and MDDBV IP documents.

2. Testing should be conducted while logged in as sysadmin. On the HP target platform, the tester must be able to initiate and have access to an xterm window. On the Windows NT, the tester must be able to initiate and have access to a DOS window. These windows are required to operate the test driver programs and capture output. Procedures for establishing these windows are provided in Section 3.1.3 of this document.

4.2.1.2 Test Inputs

There are no test inputs for this test case.

4.2.1.3 Expected Test Results

The API will retrieve a listing of available resolutions from the database. The detailed expected test results are provided in **Appendix B** of this document.

4.2.1.4 Criteria for Evaluating Results

The test case outputs derived from the test driver must match exactly with the Expected Test Results. The range of accuracy is exact with no deviation from the expected result. The output information is compared by re-directing the results to a file using the test driver debug command line argument or conventional screen capture techniques. The file is then viewed and compared with the expected test results provided in this document. The test case must be run on both target platforms (HP-UX and Windows NT) and the test results compared to ensure that both platforms provide the same results.

4.2.1.5 Test Procedure

Once the Prerequisite Conditions (Section 4.2.1.1) for the test have been met, the MADBVtestGetCatalog test driver program is run by the tester. The test driver program automatically executes the specified test case. Section 3.1.2 of this document describes the procedures required to run the test driver program and obtain the test results.

4.2.1.6 Assumptions and Constraints

This test assumes that the target hardware is operating correctly and is configured with the operating, application, and test driver software identified in Sections 3.1 and 3.2 of the MDDBV IP and this document.

4.2.2 Simultaneous Retrieval of Resolutions with Get Catalog Test Case

This test case will verify that MDDBV and MADBV correctly retrieve a catalog listing of the resolutions that are available. This test case is executed from the HP-UX and the Windows NT machines simultaneously. The test will demonstrate the retrieving of a catalog listing of resolutions on both systems without error using a series of identical test cases.

4.2.2.1 Prerequisite Conditions

The following conditions must be established prior to executing these test cases:

1. All applicable segments are loaded on the target machines as specified in Section 3 of the MADBV and MDDBV IP documents.

2. Testing should be conducted while logged in as sysadmin. On the HP target platform, the tester must be able to initiate and have access to an xterm window. On the Windows NT, the tester must be able to initiate and have access to a DOS window. These windows are required to operate the test driver programs and capture output. Procedures for establishing these windows are provided in Section 3.1.3 of this document.

4.2.2.2 Test Inputs

There are no test inputs for this test case.

4.2.2.3 Expected Test Results

The API will retrieve a listing of available resolutions from the database. The detailed expected test results are provided in **Appendix B** of this document.

4.2.2.4 Criteria for Evaluating Results

The test case outputs derived from the test driver must match exactly with the Expected Test Results. The range of accuracy is exact with no deviation from the expected result. The output information is compared by re-directing the results to a file using the test driver debug command line argument or conventional screen capture techniques. The file is then viewed and compared with the expected test results provided in this document. The test case must be run on both target platforms (HP-UX and Windows NT) and the test results compared to ensure that both platforms provide the same results.

4.2.2.5 Test Procedure

Once the Prerequisite Conditions (Section 4.2.2.1) for the test have been met, the MADBVtestGetCatalog test driver program is run by the tester on both the HP-UX and Windows NT machine simultaneously. The test driver program automatically executes the specified test case. Section 3.1.2 of this document describes the procedures required to run the test driver program and obtain the test results.

4.2.2.6 Assumptions and Constraints

This test assumes that the target hardware is operating correctly and is configured with the operating, application, and test driver software identified in Sections 3.1 and 3.2 of the MDDBV IP and this document.

4.3 Retrieve Contour Test

The following test cases verify that the MDDBV database and MADBV API segments support the retrieval of historical contours from the database.

4.3.1 Retrieval of Contours with Get Contour Test Case

This test case will verify that MDDBV and MADBV correctly retrieve a contour from the database. The test will demonstrate the retrieving of a contour using a series of test cases.

4.3.1.1 Prerequisite Conditions

The following conditions must be established prior to executing these test cases:

1. All applicable segments are loaded on the target machines as specified in Section 3 of the MADBV and MDDBV IP documents.

2. Testing should be conducted while logged in as sysadmin. On the HP target platform, the tester must be able to initiate and have access to an xterm window. On the Windows NT, the tester must be able to initiate and have access to a DOS window. These windows are required to operate the test driver programs and capture output. Procedures for establishing these windows are provided in Section 3.1.3 of this document.

4.3.1.2 Test Inputs

The test inputs necessary for this test case are provided in the **CONTOUR** test case driver files described in **Appendix A** of this document. These files provide the Top Latitude, Bottom Latitude, Left Longitude, and Right Longitude, which are required for the retrieval of a contour from the database.

4.3.1.3 Expected Test Results

The API will retrieve a contour from the database. The detailed expected test results are provided in **Appendix B** of this document.

4.3.1.4 Criteria for Evaluating Results

The test case outputs derived from the test driver must match exactly with the Expected Test Results. The range of accuracy is exact with no deviation from the expected result. The output

information is compared by re-directing the results to a file using the test driver debug command line argument or conventional screen capture techniques. The file is then viewed and compared with the expected test results provided in this document. The test case must be run on both target platforms (HP-UX and Windows NT) and the test results compared to ensure that both platforms provide the same results.

4.3.1.5 Test Procedure

Once the Prerequisite Conditions (Section 4.3.1.1) for the test have been met, the MADBVtestGetContour test driver program is run by the tester. The test driver program automatically executes the specified test case. Section 3.1.2 of this document describes the procedures required to run the test driver program and obtain the test results.

4.3.1.6 Assumptions and Constraints

This test assumes that the target hardware is operating correctly and is configured with the operating, application, and test driver software identified in Sections 3.1 and 3.2 of the MDDBV IP and this document.

4.3.2 Simultaneous Retrieval of Contours with Get Contour Test Case

This test case will verify that MDDBV and MADBV correctly retrieve a contour from the database. This test case is executed from the HP-UX and Windows NT machines simultaneously. The test will demonstrate the retrieving of a contour on both systems without error using a series of test cases.

4.3.2.1 Prerequisite Conditions

The following conditions must be established prior to executing these test cases:

1. All applicable segments are loaded on the target machines as specified in Section 3 of the MADBV and MDDBV IP documents.

2. Testing should be conducted while logged in as sysadmin. On the HP target platform, the tester must be able to initiate and have access to an xterm window. On the Windows NT, the tester must be able to initiate and have access to a DOS window. These windows are required to operate the test driver programs and capture output. Procedures for establishing these windows are provided in Section 3.1.3 of this document.

4.3.2.2 Test Inputs

The test inputs necessary for this test case are provided in the **CONTOUR** test case driver files described in **Appendix A** of this document. These files provide the Top Latitude, Bottom Latitude, Left Longitude, and Right Longitude, which are required for the retrieval of a contour from the database.

4.3.2.3 Expected Test Results

The API will retrieve a contour from the database. The detailed expected test results are provided in **Appendix B** of this document.

4.3.2.4 Criteria for Evaluating Results

The test case outputs derived from the test driver must match exactly with the Expected Test Results. The range of accuracy is exact with no deviation from the expected result. The output information is compared by re-directing the results to a file using the test driver debug command line argument or conventional screen capture techniques. The file is then viewed and compared with the expected test results provided in this document. The test case must be run on both target platforms (HP-UX and Windows NT) and the test results compared to ensure that both platforms provide the same results.

4.3.2.5 Test Procedure

Once the Prerequisite Conditions (Section 4.3.2.1) for the test have been met, the MADBVtestGetContour test driver program is run by the tester on both the HP-UX and Windows NT machines simultaneously. The test driver program automatically executes the specified test case. Section 3.1.2 of this document describes the procedures required to run the test driver program and obtain the test results.

4.3.2.6 Assumptions and Constraints

This test assumes that the target hardware is operating correctly and is configured with the operating, application, and test driver software identified in Sections 3.1 and 3.2 of the MDDBV IP and this document.

4.4 Retrieval of a Grid Test

The following test cases verify that the MDDBV database and MADBV API segments support the retrieval of historical grids from the database.

4.4.1 Retrieval of Grids with Get Grid Test Case

This test case will verify that MDDBV and MADBV correctly retrieve a grid from the database. The test will demonstrate the retrieving of a contour using a series of test cases.

4.4.1.1 Prerequisite Conditions

The following conditions must be established prior to executing these test cases:

1. All applicable segments are loaded on the target machines as specified in Section 3 of the MADBV and MDDBV IP documents.
2. Testing should be conducted while logged in as sysadmin. On the HP target platform, the tester must be able to initiate and have access to an xterm window. On the Windows NT, the tester must be able to initiate and have access to a DOS window. These windows are required to operate the test driver programs and capture output. Procedures for establishing these windows are provided in Section 3.1.3 of this document.

4.4.1.2 Test Inputs

The test inputs necessary for this test case are provided in the **GRID** test case driver files described in **Appendix A** of this document. These files provide the Top Latitude, Bottom Latitude, Left Longitude, Right Longitude, Resolution, and Extraction Units, which are required for the retrieval of a grid from the database.

4.4.1.3 Expected Test Results

The API will retrieve a grid from the database. The detailed expected test results are provided in **Appendix B** of this document.

4.4.1.4 Criteria for Evaluating Results

The test case outputs derived from the test driver must match exactly with the Expected Test Results. The range of accuracy is exact with no deviation from the expected result. The output information is compared by re-directing the results to a file using the test driver debug command line argument or conventional screen capture techniques. The file is then viewed and compared with the expected test results provided in this document. The test case must be run on both target

platforms (HP-UX and Windows NT) and the test results compared to ensure that both platforms provide the same results.

4.4.1.5 Test Procedure

Once the Prerequisite Conditions (Section 4.4.1.1) for the test have been met, the MADBVtestGetGrid test driver program is run by the tester. The test driver program automatically executes the specified test case. Section 3.1.2 of this document describes the procedures required to run the test driver program and obtain the test results.

4.4.1.6 Assumptions and Constraints

This test assumes that the target hardware is operating correctly and is configured with the operating, application, and test driver software identified in Sections 3.1 and 3.2 of the MDDBV IP and this document.

4.4.2 Retrieval of Grids with Get Grid Error Test Case

This test case will verify that MDDBV and MADBV will not retrieve a grid from the database. The test will demonstrate that with erroneous data, MDDBV and MADBV will not correctly retrieve a grid using a series of test cases.

4.4.2.1 Prerequisite Conditions

The following conditions must be established prior to executing these test cases:

1. All applicable segments are loaded on the target machines as specified in Section 3 of the MADBV and MDDBV IP documents.

2. Testing should be conducted while logged in as sysadmin. On the HP target platform, the tester must be able to initiate and have access to an xterm window. On the Windows NT, the tester must be able to initiate and have access to a DOS window. These windows are required to operate the test driver programs and capture output. Procedures for establishing these windows are provided in Section 3.1.3 of this document.

4.4.2.2 Test Inputs

The test inputs necessary for this test case are provided in the **GRID** test case driver files described in **Appendix A** of this document. These files provide the Top Latitude, Bottom Latitude, Left Longitude, and Right Longitude, which are required for the retrieval of a grid from the database.

4.4.2.3 Expected Test Results

The API will retrieve a grid from the database. The detailed expected test results are provided in **Appendix B** of this document.

4.4.2.4 Criteria for Evaluating Results

The test case outputs derived from the test driver must match exactly with the Expected Test Results. The range of accuracy is exact with no deviation from the expected result. The output information is compared by re-directing the results to a file using the test driver debug command line argument or conventional screen capture techniques. The file is then viewed and compared with the expected test results provided in this document. The test case must be run on both target platforms (HP-UX and Windows NT) and the test results compared to ensure that both platforms provide the same results.

4.4.2.5 Test Procedure

Once the Prerequisite Conditions (Section 4.4.2.1) for the test have been met, the MADBVtestGetGrid test driver program is run by the tester. The test driver program automatically executes the specified test case. Section 3.1.2 of this document describes the procedures required to run the test driver program and obtain the test results.

4.4.2.6 Assumptions and Constraints

This test assumes that the target hardware is operating correctly and is configured with the operating, application, and test driver software identified in Sections 3.1 and 3.2 of the MDDBV IP and this document.

4.4.3 Simultaneous Retrieval of Contours with Get Grid Test Case

This test case will verify that MDDBV and MADBV correctly retrieve a grid from the database. This test case is executed from the HP-UX and Windows NT machines simultaneously. The test will demonstrate the retrieval of grids on both systems without error using a series of test cases.

4.4.3.1 Prerequisite Conditions

The following conditions must be established prior to executing these test cases:

1. All applicable segments are loaded on the target machines as specified in Section 3 of the MADBV and MDDBV IP documents.

2. Testing should be conducted while logged in as sysadmin. On the HP target platform, the tester must be able to initiate and have access to an xterm window. On the Windows NT, the tester must be able to initiate and have access to a DOS window. These windows are required to operate the test driver programs and capture output. Procedures for establishing these windows are provided in Section 3.1.3 of this document.

4.4.3.2 Test Inputs

The test inputs necessary for this test case are provided in the **GRID** test case driver files described in **Appendix A** of this document. These files provide the Top Latitude, Bottom Latitude, Left Longitude, Right Longitude, Resolution, and Extraction Units, which are required for the retrieval of a grid from the database.

4.4.3.3 Expected Test Results

The API will retrieve a grid from the database. The detailed expected test results are provided in **Appendix B** of this document.

4.4.3.4 Criteria for Evaluating Results

The test case outputs derived from the test driver must match exactly with the Expected Test Results. The range of accuracy is exact with no deviation from the expected result. The output information is compared by re-directing the results to a file using the test driver debug command line argument or conventional screen capture techniques. The file is then viewed and compared with the expected test results provided in this document. The test case must be run on both target platforms (HP-UX and Windows NT) and the test results compared to ensure that both platforms provide the same results.

4.4.3.5 Test Procedure

Once the Prerequisite Conditions (Section 4.4.3.1) for the test have been met, the MADBVtestGetGrid test driver program is run by the tester on both the HP-UX and Windows NT machines simultaneously. The test driver program automatically executes the specified test case. Section 3.1.2 of this document describes the procedures required to run the test driver program and obtain the test results.

4.4.3.6 Assumptions and Constraints

This test assumes that the target hardware is operating correctly and is configured with the operating, application, and test driver software identified in Sections 3.1 and 3.2 of the MDDBV IP and this document.

4.5 Retrieval of a Track Test

The following test cases verify that the MDDBV database and MADBV API segments support the retrieval of geographical tracks from the database.

4.5.1 Retrieval of Tracks with Get Track Test Case

This test case will verify that MDDBV and MADBV correctly retrieve a track from the database. The test will demonstrate the retrieving of a track using a series of test cases.

4.5.1.1 Prerequisite Conditions

The following conditions must be established prior to executing these test cases:

1. All applicable segments are loaded on the target machines as specified in Section 3 of the MADBV and MDDBV IP documents.

2. Testing should be conducted while logged in as sysadmin. On the HP target platform, the tester must be able to initiate and have access to an xterm window. On the Windows NT, the tester must be able to initiate and have access to a DOS window. These windows are required to operate the test driver programs and capture output. Procedures for establishing these windows are provided in Section 3.1.3 of this document.

4.5.1.2 Test Inputs

The test inputs necessary for this test case are provided in the **TRACK** test case driver files described in **Appendix A** of this document. These files provide the Latitude, Longitude, Range, Bearing, Extraction Type, Extraction Units, Resolution, and Land Check, which are required for the retrieval of a track from the database.

4.5.1.3 Expected Test Results

The API will retrieve a track from the database. The detailed expected test results are provided in **Appendix B** of this document.

4.5.1.4 Criteria for Evaluating Results

The test case outputs derived from the test driver must match exactly with the Expected Test Results. The range of accuracy is exact with no deviation from the expected result. The output

information is compared by re-directing the results to a file using the test driver debug command line argument or conventional screen capture techniques. The file is then viewed and compared with the expected test results provided in this document. The test case must be run on both target platforms (HP-UX and Windows NT) and the test results compared to ensure that both platforms provide the same results.

4.5.1.5 Test Procedure

Once the Prerequisite Conditions (Section 4.5.1.1) for the test have been met, the MADBVtestGettrack test driver program is run by the tester. The test driver program automatically executes the specified test case. Section 3.1.2 of this document describes the procedures required to run the test driver program and obtain the test results.

4.5.1.6 Assumptions and Constraints

This test assumes that the target hardware is operating correctly and is configured with the operating, application, and test driver software identified in Sections 3.1 and 3.2 of the MDDBV IP and this document.

4.5.2 Retrieval of Tracks with Get Track Error Test Case

This test case will verify that MDDBV and MADBV will not retrieve a track from the database. The test will demonstrate that with erroneous data, MDDBV and MADBV will not retrieve a track using a series of test cases.

4.5.2.1 Prerequisite Conditions

The following conditions must be established prior to executing these test cases:

1. All applicable segments are loaded on the target machines as specified in Section 3 of the MADBV and MDDBV IP documents.

2. Testing should be conducted while logged in as sysadmin. On the HP target platform, the tester must be able to initiate and have access to an xterm window. On the Windows NT, the tester must be able to initiate and have access to a DOS window. These windows are required to operate the test driver programs and capture output. Procedures for establishing these windows are provided in Section 3.1.3 of this document.

4.5.2.2 Test Inputs

The test inputs necessary for this test case are provided in the **TRACK** test case driver files described in **Appendix A** of this document. These files provide the Latitude, Longitude, Range, Bearing, Extraction Type, Extraction Unit, Resolution, and Land Check, which are required for the retrieval of a track from the database.

4.5.2.3 Expected Test Results

The API will retrieve a track from the database. The detailed expected test results are provided in **Appendix B** of this document.

4.5.2.4 Criteria for Evaluating Results

The test case outputs derived from the test driver must match exactly with the Expected Test Results. The range of accuracy is exact with no deviation from the expected result. The output information is compared by re-directing the results to a file using the test driver debug command line argument or conventional screen capture techniques. The file is then viewed and compared with the expected test results provided in this document. The test case must be run on both target platforms (HP-UX and Windows NT) and the test results compared to ensure that both platforms provide the same results.

4.5.2.5 Test Procedure

Once the Prerequisite Conditions (Section 4.5.2.1) for the test have been met, the MADBVtestGetTrack test driver program is run by the tester. The test driver program automatically executes the specified test case. Section 3.1.2 of this document describes the procedures required to run the test driver program and obtain the test results.

4.5.2.6 Assumptions and Constraints

This test assumes that the target hardware is operating correctly and is configured with the operating, application, and test driver software identified in Sections 3.1 and 3.2 of the MDDBV IP and this document.

4.5.3 Simultaneous Retrieval of Tracks with Get Track Test Case

This test case will verify that MDDBV and MADBV correctly retrieve a track from the database. This test case is executed from the HP-UX and Windows NT machines simultaneously. The test will demonstrate the retrieval of tracks on both systems without error using a series of test cases.

4.5.3.1 Prerequisite Conditions

The following conditions must be established prior to executing these test cases:

1. All applicable segments are loaded on the target machines as specified in Section 3 of the MADBV and MDDBV IP documents.

2. Testing should be conducted while logged in as sysadmin. On the HP target platform, the tester must be able to initiate and have access to an xterm window. On the Windows NT, the tester must be able to initiate and have access to a DOS window. These windows are required to operate the test driver programs and capture output. Procedures for establishing these windows are provided in Section 3.1.3 of this document.

4.5.3.2 Test Inputs

The test inputs necessary for this test case are provided in the **TRACK** test case driver files described in **Appendix A** of this document. These files provide the Latitude, Longitude, Range, Bearing, Extraction Type, Extraction Unit, Resolution, and Land Check, which are required for the retrieval of a track from the database.

4.5.3.3 Expected Test Results

The API will retrieve a track from the database. The detailed expected test results are provided in **Appendix B** of this document.

4.5.3.4 Criteria for Evaluating Results

The test case outputs derived from the test driver must match exactly with the Expected Test Results. The range of accuracy is exact with no deviation from the expected result. The output information is compared by re-directing the results to a file using the test driver debug command line argument or conventional screen capture techniques. The file is then viewed and compared with the expected test results provided in this document. The test case must be run on both target platforms (HP-UX and Windows NT) and the test results compared to ensure that both platforms provide the same results.

4.5.3.5 Test Procedure

Once the Prerequisite Conditions (Section 4.5.3.1) for the test have been met, the MADBVtestGetTrack test driver program is run by the tester on both the HP-UX and Windows NT machines simultaneously. The test driver program automatically executes the specified test

case. Section 3.1.2 of this document describes the procedures required to run the test driver program and obtain the test results.

4.5.3.6 Assumptions and Constraints

This test assumes that the target hardware is operating correctly and is configured with the operating, application, and test driver software identified in Sections 3.1 and 3.2 of the MDDBV IP and this document.

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5 REQUIREMENTS TRACEABILITY

All of the test cases discussed in Section 4 of this document were derived from the specifications and requirements referenced in the *Performance Specification (PS) for the Tactical Environmental Support System/Next Century [TESS(NC)] (UN/UMK-3)* and the *Software Requirements Specification for the Tactical Environmental Support System/Next Century [TESS(NC)] Meteorological and Oceanographic (METOC) Database*.

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6 GLOSSARY OF ACRONYMS

AESS	Allied Environmental Support System
APIRM	Application Program Interface Reference Manual
CM	Configuration Managed
COE	Common Operating Environment
DBDB-V	Digitized Bathymetric Database – Variable resolution
DII	Defense Information Infrastructure
GCCS	Global Command and Control System
IC4ISR	Integrated Command, Control, Communications, Computer, and Intelligence Surveillance Reconnaissance
IMOSS	Interim Mobile Oceanographic Support System
IP	Installation Procedures
JMCIS	Joint Maritime Command Information System
JMS	Joint METOC Segment
LLT	Latitude-Longitude-Time
MADBV	Digitized Bathymetric API Segment
MDDBV	Digitized Bathymetric Data Segment
METOC	Meteorological and Oceanographic
MIDDS	Meteorological Integrated Data Display System

NITES	Navy Integrated Tactical Environmental Subsystem
OAML	Oceanographic and Atmospheric Master Library
PM	Programming Manual
PS	Performance Specification
SPAWAR PMW-185	Space and Naval Warfare Systems Command, Environmental Systems Program Office
SQL	Structured Query Language
STD	Software Test Description
STR	Software Test Report
SVD	Software Version Description
TESS(NC)	Tactical Environmental Support System (Next Century)

Appendix A - DBDB-V Segment Test Inputs

The following data and file are required as input by DBDB-V segment (i.e., MDDBV, MADBV) testing.

A.1 MDDBV and MADBV Segment Installation Test

No input data is required by Test Cases 4.1.1, 4.1.2, and 4.1.3. See associated MDDBV and MADBV Installation Procedure documents.

A.2 Resolution Catalog Test

No input data is required by Test Cases 4.2.1 and 4.2.2.

A.3 Retrieve Contour Test

A.3.1 Retrieval of Contours with Get Contour Test Case (4.3.1) Inputs

The following files provide the test case data required as inputs. These files and the contents of these files can be found in the **/h/MADBV/Integ/TestSuite/TESTDATA/CONTOUR** directory on the target platform.

Input Filename	Description
atlantic_ocean	Contour of a piece of the Atlantic Ocean.
east_coast_us	Contour off the east coast of the U.S.
equator_contour	Contour that crosses the equator.
india	Contour of the coast of India
international_dateline_contour	Contour that wraps around the International Date Line.
italy	Contour off the southern tip of Italy.
japan	Contour off the coast of Japan
med_sea	Contour of a piece of the Med Sea.
meridian	Contour that crosses the meridian.
west_coast_us	Contour off the west coast of the U.S.

The following is an example of the data structure required for the retrieval of a typical contour:

10.000000	Top Latitude
6.000000	Bottom Latitude
75.000000	Left Longitude
79.000000	Right Longitude

A.3.2 Simultaneous Retrieval of Contours Test Case (4.3.2) Inputs

The multi-user test retrieves all of the contours described in A.3.1. The only difference is that the GetContour test driver is initiated simultaneously at the HP and Windows NT machines.

A.4 Retrieval of a Grid Test

A.4.1 Retrieval of Grids with Get Grid Test Case (4.4.1) Inputs

The following files provide the test case data required as inputs. These files and the contents of these files can be found in the **/h/MADBV/Integ/TestSuite/TESTDATA/GRID** directory on the target platform.

Input Filename	Description
equator_grid	Grid that crosses over the equator.
grid	Retrieves a grid.
international_dateline_grid	Retrieves a grid over the International Date Line.
somewhere	Retrieves a grid.
somewhere1	Retrieves a grid.
south_somewhere	Retrieves a grid in the Southern Hemisphere
top_of_world	Retrieves a grid at the top of the world.

The following is an example of the data structure required for retrieving one grid:

15.000000	Top Latitude
5.000000	Bottom Latitude
57.000000	Left Longitude
68.000000	Right Longitude
08.000000	Resolution
2	Units

A.4.2 Retrieval of Grids with the Erroneous Data Test Case (4.4.2) Inputs

The following files provide the test case data required as inputs. These files and the contents of these files can be found in the **/h/MADBV/Integ/TestSuite/TESTDATA/GRID** directory on the target platform.

Input Filename	Description
x_resolution_grid	Attempted to retrieve a grid, but bad resolution.

Input Filename	Description
x_switched_lat	Attempted to retrieve a grid, but bad Top and Bottom Latitudes.
x_switched_long	Attempted to retrieve a grid, but bad Left and Right Longitudes.
x_units_grid	Attempted to retrieve a grid, but bad extraction units.

A.4.3 Simultaneous Retrieval of Grids with Get Grid Test Case (4.4.3) Inputs

The multi-user test retrieves all of the grids described in A.4.1. The only difference is that the GetGrid test driver is initiated simultaneously at the HP and Windows NT machines.

A.5 Retrieval of a Track Test

A.5.1 Retrieval of Tracks with Get Track Test Case (4.5.1) Inputs

The following files provide the test case data required as inputs. These files and the contents of these files can be found in the **/h/MADBV/Integ/TestSuite/TESTDATA/TRACK** directory on the target platform.

Input Filename	Description
track	Range of 850.
track1	Does not go over land.
track2	Resolution of 90.
track3	Bearing of 0 degrees.
track4	Retrieves a track.
track5	Retrieves a track.
track6	Retrieves a track.

The following is an example of the data structure required for retrieving one track:

30.000000	Latitude
15.000000	Longitude
850.000000	Range
36.000000	Bearing
1	Extraction Type
2	Extraction Units
30	Resolution
1	Land Check

A.5.2 Retrieval of Tracks with the Erroneous Data Test Case (4.5.2) Inputs

The following files provide the test case data required as inputs. These files and the contents of these files can be found in the **/h/MADBV/Integ/TestSuite/TESTDATA/TRACK** directory on the target platform.

Input Filename	Description
x_resolution_track	Attempted to retrieve a track, but bad resolution.

Input Filename	Description
x_latlon	Attempted to retrieve a track, but bad lat/lon values.
x_units_track	Attempted to retrieve a track, but bad extraction units.

A.5.3 Simultaneous Retrieval of Tracks with Get Track Test Case (4.5.3) Inputs

The multi-user test retrieves all of the tracks described in A.5.1. The only difference is that the GetTrack test driver is initiated simultaneously at the HP and Windows NT machines.

Appendix B - DBDB-V Segment Expects and Report of Test Results

B.1 Test Results

For the MADBV and MDDBV segments, with the exception of the installation procedures, all testing was conducted with the constructed test cases described in **Appendix A**. It should be clarified that the test cases were developed in conjunction with the test drivers to assist the developers with a variety of fairly realistic data inputs and outputs. As a result of this, the test cases described in this document were continuously updated to ensure that the end results matched the expected results. In doing so, the test team worked closely with the development team to verify reasons for test cases that did not match the expected results.

For this reason, the excepted results are identical to the planned results when running the final pre-delivery tests. Test drivers and test cases were verified on Configuration Managed (CM) HP-UX and Windows NT 4.0 platforms. Discrepancies were documented using a PTR database. Corrected PTRs were again tested in the CM environment to verify that problems or enhancements were properly resolved (open and closed PTRs are listed in the Software Version Description documents for the MADBV and MDDBV segments).

B.2 Problems Encountered

The only major problem encountered with this series of tests dealt with the test results output when dealing with the NT and HP-UX platforms. When running batch processing, the NT and HP systems will execute the test case files in a different sequence. As a result, when reviewing and comparing the output data for each test, the NT system will show the same results as the HP platform but in a different order or sequence.

B.3 Test Case Results

Due to a large amount of output data and results when running the provided test cases in a batch processing mode, the data is provided on a 3.5" floppy disk in a “text” format. Test cases that meet the criteria are annotated in this section.

B.3.1 MDDBV and MADBV Segment Installation Test

Figure B-1 is a graphic example of the Segment Installer on the HP-UX system. Once the MD/MADBV segments are properly installed, the user will see the segments listed in the Currently Installed Segments portion of the Installer window. In addition, the MD/MADBV

segments will still be listed in the Select Software to Install portion of the Installer window. In this window, the installed segments will gave a "*" prior to each name. This denotes that the segment is successfully installed on the HP-UX platform.

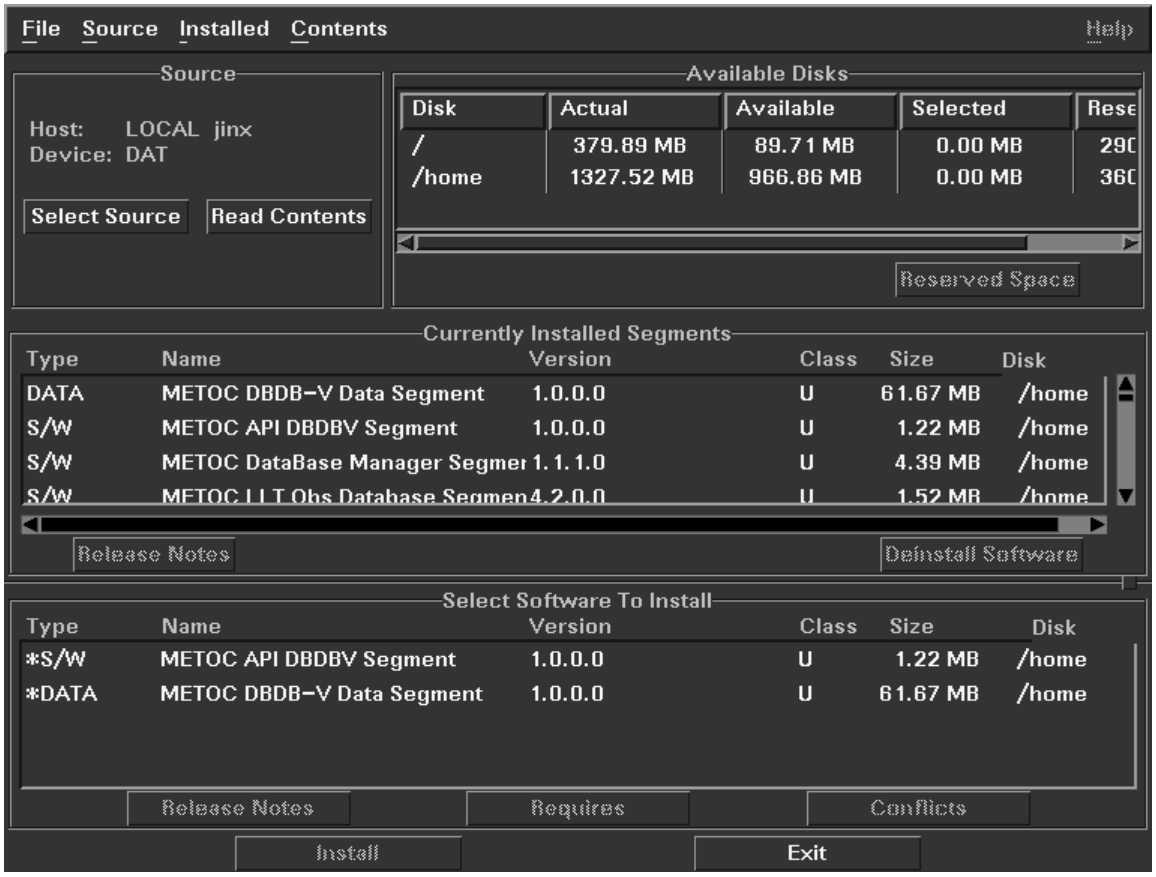

Figure B-1. HP-UX Segment Installer

Figure B-2 is a graphic example of the Install Shield on the Windows NT system. Once installed, the Add/Remove Programs Properties window will have the MADBV segment listed in the list provided.

Figure B-2. Add/Remove Programs Properties Window

B.3.2 Resolution Catalog Test

The test data output and results are provided on the 3.5" floppy provided with this document. The file name is *Catalog*.

B.3.3 Retrieve Contour Test

The test data output and results are provided on the 3.5" floppy provided with this document. The file name is *Contour*. The Get Contour generates files “Contour0.dat” that were verified using hiresdraw to view the extracted contours.

B.3.4 Retrieval of a Grid Test

The test data output and results are provided on the 3.5" floppy provided with this document. The file name is *Grid*. The -d option was used to generate this file. The -d option displays the coordinates of the grid that was retrieved.

B.3.5 Retrieval of a Track Test

The test data output and results are provided on the 3.5" floppy provided with this document. The file name is *Track*. The -d option was used to generate this file. The -d option displays the coordinates of the track that was retrieved.